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10/522,655	06/06/2005	Pierre Bessiere	BEAUMONT-15	8597

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Howard IP Law Group
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Fort Washington, PA 19034

EXAMINER
COUGHLAN, PETER D

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/522,655	BESSIERE, PIERRE
	Examiner	Art Unit	
	PETER COUGHLAN	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 January 2005*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-12* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *24 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☒ All   b)☐ Some * c)☐ None of:
    1.☒ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *3/30/2006*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

1.   Claims 1-12 are pending in this application.

2.   Examiner's Comment: Although, the terms 'carrier wave' or 'carrier signal' is not

specifically mentioned within the specification, the Examiner will exclude these

interpretations wherein the context of 'memory' is disclosed.

35 USC § 101

3.   35 U.S.C. 101 reads as follows:
   Whoever invents or discovers any new and useful process, machine,
   manufacture, or composition of matter, or any new and useful improvement
   thereof, may obtain a patent therefor, subject to the conditions and requirements
   of this title.

   Claims 1-12 are rejected under 35 U.S.C. §101 for preemption. Paragraphs 0001

and 0002 of the specification states;

   The present invention relates to a method for deter-mining the value to be given

to a set of so-called specific parameters of a system based on the values of a set of so-

called system measurement parameters.

   Such a method may be used to control various systems such as a character

recognition system, an electric component failure diagnosis system, a system for

evaluating a transport cost.'

This invention falls within the realm of being abstract such that it can be applied to numerous purposes as stated within paragraph 0002, resulting with the invention preempts ideas.

The courts have also held that a claim may not preempt ideas, laws of nature or natural phenomena. The concern over preemption was expressed as early as 1852. See Le Roy v. Tatham, 55 U.S. (14 How.) 156, 175 (1852) ("A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right."); Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 132, 76 USPQ 280, 282 (1948).

Accordingly, one may not patent every "substantial practical application" of an idea, law of nature or natural phenomena because such a patent "in practical effect would be a patent on the [idea, law of nature or natural phenomena] itself." "Here the "process" claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure-binary conversion. The end use may (1) vary from the operation of a train to verification of drivers' licenses to researching the law books for precedents and (2) be performed through any existing machinery or future-devised machinery or without any apparatus." Gottschalk v. Benson, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972).

An invention which preempts uses or functions is nonstatutory.

1.   Examiner bases his position upon guidance provided by the Federal Circuit in *In re Warmerdam*, as interpreted by *AT&T v. Excel*. This set of precedents is within the same line of cases as the *Alappat-State Street Bank* decisions and is in complete

agreement with those decisions. *Warmerdam* is consistent with *State Street*'s holding

that:

> Today we hold that *the transformation of data, representing <u>discrete dollar</u>
> <u>amounts</u>, by a machine through a series of mathematical calculations into a*
> *final share price*, constitutes a practical application of a mathematical
> algorithm, formula, or calculation because it produces 'a useful, concrete and
> tangible result" -- *a final share price momentarily fixed for recording purposes*
> *and even accepted and relied upon by regulatory authorities and in*
> *subsequent trades.* (emphasis added) *State Street Bank* at 1601.

2.   True enough, that case later eliminated the "business method exception" in order

to show that business methods were not per se nonstatutory, but the court clearly *did*

not go so far as to make business methods *per se statutory*. A plain reading of the

excerpt above shows that the Court was *very specific* in its definition of the new

practical application. It would have been much easier for the court to say that "business

methods were per se statutory" than it was to define the practical application in the case

as "...the transformation of data, representing discrete dollar amounts, by a machine

through a series of mathematical calculations into a final share price..."

3.   The court was being very specific.

4.   Additionally, the court was also careful to specify that the "useful, concrete and

tangible result" it found was "a final share price momentarily fixed for recording

purposes and even accepted and <u>relied upon</u> by regulatory authorities and in

subsequent <u>trades</u>." (i.e. the trading activity is the <u>further practical use</u> of the real world

<u>monetary</u> data beyond the transformation in the computer – i.e., "post-processing

activity".)

5.   Applicant cites no such specific results to define a useful, concrete and tangible

result. Neither does Applicant specify the associated practical application with the kind

of specificity the Federal Circuit used.

6.   Furthermore, in the case *In re Warmerdam*, the Federal Circuit held that:

> …[T]he dispositive issue for assessing compliance with Section 101 in this
> case is whether the claim is for a process that goes beyond simply
> manipulating 'abstract ideas' or 'natural phenomena' ... As the Supreme
> Court has made clear, '[a]n idea of itself is not patentable, ... *taking several*
> *abstract ideas and manipulating them together adds nothing to the basic*
> *equation*. In re Warmerdam 31 USPQ2d at 1759 (emphasis added).

7.   Since the Federal Circuit held in *Warmerdam* that this is <u>the</u> "dispositive issue"
when it judged the usefulness, concreteness, and tangibility of the claim limitations in
that case, Examiner in the present case views this holding as the dispositive issue for
determining whether a claim is "useful, concrete, and tangible" in similar cases.
Accordingly, the Examiner finds that Applicant manipulated a set of abstract "constraint
determinations" to solve purely algorithmic problems in the abstract (i.e., what *kind* of
"constraint determination" is used? Heart rhythm data? Algebraic equations? Boolean
logic problems? Fuzzy logic algorithms? Probabilistic word problems? Philosophical
ideas? Even vague expressions, about which even reasonable persons could differ as
to their meaning? Combinations thereof?) Clearly, a claim for manipulation of "constraint
determination" is provably even more abstract (and thereby less limited in practical
application) than pure "mathematical algorithms" which the Supreme Court has held are
<u>per se</u> nonstatutory – in fact, it *includes* the expression of nonstatutory mathematical
algorithms.

8.   Since the claims are not limited to <u>exclude</u> such abstractions, the broadest
reasonable interpretation of the claim limitations <u>includes</u> such abstractions. Therefore,
the claims are impermissibly abstract under 35 U.S.C. §101 doctrine.

9.   Since *Warmerdam* is within the *Alappat-State Street Bank* line of cases, it takes
the same view of "useful, concrete, and tangible" the Federal Circuit applied in *State
Street Bank*. Therefore, under *State Street Bank*, this could not be a "useful, concrete
and tangible result". There is only manipulation of abstract ideas.

10.   The Federal Circuit validated the use of *Warmerdam* in its more recent *AT&T*

Corp. v. Excel Communications, Inc. decision. The Court reminded us that:

> Finally, **the decision in In re Warmerdam**, 33 F.3d 1354, 31
> USPQ2d 1754 (Fed. Cir. 1994) **is not to the contrary**. *** The court found
> that the claimed process did nothing more than manipulate basic
> mathematical constructs and concluded that '**taking several abstract ideas
> and manipulating them together adds nothing to the basic equation**';
> hence, the court held that the claims were properly rejected under §101 ...
> Whether one agrees with the court's conclusion on the facts, the **holding** of
> the case is a straightforward application of the basic principle that mere laws
> of nature, natural phenomena, and abstract ideas are not within the
> categories of inventions or discoveries that may be patented under §101.
> (emphasis added) AT&T Corp. v. Excel Communications, Inc., 50
> USPQ2d 1447, 1453 (Fed. Cir. 1999).

11.   Remember that in *In re Warmerdam*, the Court said that this was the dispositive

issue to be considered. In the *AT&T* decision cited above, the Court reaffirms that this is

the issue for assessing the "useful, concrete, and tangible" nature of a set of claims

under 101 doctrine. Accordingly, Examiner views the *Warmerdam* holding as the

dispositive issue in this analogous case.

12.   The fact that the invention is merely the manipulation of *abstract ideas* is clear.

The data referred to by Applicant's phrase "constraint determination" is simply an

abstract construct that does not provide limitations in the claims to the transformation of

real world data (such as monetary data or heart rhythm data) by some disclosed

process. Consequently, the necessary conclusion under *AT&T, State Street* and

Warmerdam, is straightforward and clear. The claims take several abstract ideas (i.e.,

"constraint determinations" in the abstract) and manipulate them together adding

nothing to the basic equation. Claims 1-20 are, thereby, rejected under 35 U.S.C. §101.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless –

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-9, 12 are rejected under 35 U.S.C. 102(a) (hereinafter referred to

as **Coue**) being anticipated by 'Chasing an Elusive Target with a Mobile Robot.'

Claim 1

Coue teaches noting down the value of each measurement parameter (**Coue,**

p1371 C1:5-32; 'Value of each measurement parameter' of applicant is disclosed by the

'P' (probability) of Coue.); constructing a tree-shaped representation of the probability

distribution of all the possible combinations of values of the specific parameters

corresponding to the noted down values (**Coue,** p1371 C1:5-32; 'Constructing a tree

shaped representation of the probability distribution' of applicant is disclosed by the

'decomposition of the joint distribution' of Coue.), the set of combinations, forming a first

branch, being divided into several subsets of combinations, forming second branches,

each subset gathering combinations having close specific parameter values, where

each second branch can similarly divide into several third branches and so on (**Coue,**

p1371 C1:5-32; 'Being divided into several subsets of combinations' of applicant is

illustrated by a 'joint distribution as a product of simpler terms' of Coue.), a probability

value being assigned to each branch, this probability value being that obtained for one of the combinations of the considered branch or for one of the combinations of one of the branches from which the considered branch originates (**Coue,** p1371 C1:5-32; 'Probability value' of applicant is equivalent to 'P' of Coue.); selecting according to a predefined selection criterion one of the combinations of values of the specific parameters based on the representation of the previously constructed tree-shaped probability distribution. (**Coue,** p1371 C1:33 through C2:3; 'Selecting ... one of the combinations of values' of applicant is disclosed by the ability to 'control the robot' of Coue.)

Claim 2

Coue teaches wherein the branches resulting from the division of a same branch are at the number of two and contain the same number of combinations, the first branch dividing in two second branches, where each second branch can divide in two third branches and so on. (**Coue,** p1371, C1:5-32; The division of a branch into two of applicant is disclosed by 'logical proposition (either true or false)' of Coue. Each branch (parent) can only divide into two branches (children) because of only two results.)

Claim 3

Coue teaches selecting a combination different from the combinations having already been used to define the probability value of the existing branches and calculating the probability of this selected combination (**Coue,** p1373 C1:10 through

C2:7; 'Selecting a combination different' of applicant is illustrated by the ability of the 'robot to chase the target: Follow it and catch it up' of Coue. This illustrates the ability of Coue to alter an existing combination and chose another in order to follow a target and catch up with it.); dividing the so-called "parent" branch containing the selected combination in two so-called "child" combinations (**Coue**, p1371, C1:5-32; The division of a branch into two of applicant is disclosed by 'logical proposition (either true or false)' of Coue. Each branch (parent) can only divide into two branches (children) because of only two results.); and in the case where the selected combination and the "parent" combination used to define the probability value of the parent branch belong to the same child branch, assigning to the two child branches the probability value of the parent branch and dividing the child branch containing the selected combination by resuming the method at step this child branch becoming the parent branch, and in the case where the selected combination and the parent combination do not belong to the same child branch, assigning the probability value of the selected combination to the child branch containing the selected combination and assigning the probability value of the parent combination to the other child branch. (**Coue**, p1373 C1:10 through C2:7; Using or not using the 'parent' combination simply means the target robot has not significantly altered its course if reference to the chase robot. If the course remains the same in reference to the chase robot it would use the 'parent' combination with the selected combination to result in a new combination. If the target robot alters the course significantly the parent and selected combination will not be on the same branch as the

parent, then the probability value of the selected combination is the parent

combination.)

Claim 5

Coue teaches wherein the selection of a combination consists of implementing

the recursive method comprising the steps of: randomly selecting a number p ranging

between 0 and 1 (**Coue,** p1372, C1:21 through C2:13; 'Between 0 and 1' of applicant is

illustrated by probabilities calculated by Coue. 'Randomly selecting' of applicant is

disclosed by 'a value for Pan is drawn at random according to this distribution' of

Coue.); calculating the sum of the probability values assigned to the two so-called child

branches resulting from the division of the first branch, and calculating for each child

branch a new probability value equal to the ratio between the probability value assigned

to this child branch and the calculated sum (**Coue,** Figure 3; Coue displays the entire

domain and range of input variables. Any two domains within the figure can be seen as

'two so called child branches' of applicant.); defining two contiguous probability intervals

between 0 and 1, the first interval being associated with a first child branch, the second

interval being associated with the second child branch, the first interval ranging from 0

to and including the probability value of the first child branch and the second interval

ranging from the probability value to 1 (**Coue,** Figure 3; Having two contiguous

probability intervals is nothing more than having two ranges within a given domain. That

is either positive or negative. An answer is either positive or negative with a percentage

associated with them, then the sum of these is 100% or 1.); identifying in which interval

number is to be found and selecting the child branch associated with this interval, and in the case where the selected child branch ramifies into other branches, resuming the recursive method at step a), the first branch being replaced with the selected child branch (**Coue,** p1371 C1:5-32; The 'child branch' of applicant is equivalent to the 'decomposition' of the joint distribution' of Coue. 'Child branch ramifies into other branches' of applicant is illustrated by 'terms describes dependent relationship between variables' of Coue.), otherwise selecting one of the combinations of the selected child branch. (**Coue,** p1371 C1:33 through C2:12; 'Selecting one of the combinations' of applicant is inherent by the ability of the 'model could be used to control the robot' of Coue.)

Claim 6

Coue teaches wherein the selection criterion consists of selecting one of the combinations having a probability value which is predetermined or ranging between two given probability values. (**Coue,** p1371 C1:5-32; 'Two given probability values' of applicant is disclosed by the use of proposition logic being either true or false of Coue.)

Claim 7

Coue teaches wherein the probability values assigned to each branch are not normalized and can be greater than one. (**Coue,** p1371 C2:9-11; 'Not normalized and can be greater than one' of applicant is illustrated by the lack of the constant '1/Z' of Coue.)

Claim 8

Coue teaches wherein a weighting is assigned to each branch, the weighting of the branches of the last ramifications being equal to the product of the probability value assigned to this branch and of the number of combinations of this branch, the weighting of the other branches being equal to the sum of the weightings of the branches originating from the considered branch and being on the next ramification level. (**Coue, p1371, C1:33 through C2:12; 'Weighting' of applicant is equivalent to 'probabilities' of Coue.**)

Claim 9

Coue teaches wherein the probability value assigned to each branch can be normalized, the normalized probability value of a branch being obtained by dividing the probability value of this branch by the weighting assigned to the first branch of the tree. (**Coue, p1371 C2:12; 'Branch can be normalized' of applicant is accomplished by implementing the '1/Z' of Coue.**)

Claim 12

Coue teaches wherein the number of values likely to be taken by a parameter is artificially increased, the probability value of a combination of values of control parameters, among which at least a value of one of the parameters corresponds to an added value, is zero. (**Coue, p1371, C1:5-32; If parameters are artificially increased,**

among which at least a value of one of the parameters corresponds to an added value,

is zero of applicant is inherent due to the fact the original parameters probability values

would sum to 100%. Additional parameters (and associated values) can not go above

100%.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed
or described as set forth in section 102 of this title, if the differences between the
subject matter sought to be patented and the prior art are such that the subject
matter as a whole would have been obvious at the time the invention was made
to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was
made.

Claims 4, 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Coue as set forth above, in view of Villalba. (U. S. Patent 5982934, referred to as

Villalba)

Claim 4

Coue does not teach wherein the selection criterion consists of selecting one of

the combinations exhibiting the maximum probability.

Villalba teaches wherein the selection criterion consists of selecting one of the combinations exhibiting the maximum probability. (**Villalba,** Figure 9, item 80; Selection criterion having the maximum probability of applicant is equivalent to 'terminate branch by specifying object having highest probability' of Villalba.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Coue by using the result with the highest probability as taught by Villalba to have wherein the selection criterion consists of selecting one of the combinations exhibiting the maximum probability.

For the purpose of obtaining optimum results

Claim 10

Coue does not teach wherein the selection of a combination is performed by implementing a method generating combinations having high probability values.

Villalba teaches wherein the selection of a combination is performed by implementing a method generating combinations having high probability values. (**Villalba,** Figure 9, item 80; 'High probability values' of applicant is equivalent to 'terminate branch by specifying object having highest probability' of Villalba.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Coue by using high probabilities results as taught by Villalba to have wherein the selection of a combination is performed by implementing a method generating combinations having high probability values.

For the purpose of obtaining high results using tested selection combinations.

Claim 11

Coue does not teach wherein the representation of the probability distribution of all the combinations is memorized and may be subsequently refined by the creation of additional branches, or may be simplified by the suppression of certain branches.

Villalba teaches wherein the representation of the probability distribution of all the combinations is memorized and may be subsequently refined by the creation of additional branches, or may be simplified by the suppression of certain branches. **(Villalba,** C7:49-64; 'Combinations is memorized' of applicant is equivalent to 'advantageously adapts to the recognition domain and saves processing time' of Villalba.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Coue by saving known configurations as taught by Villalba to have wherein the representation of the probability distribution of all the combinations is memorized and may be subsequently refined by the creation of additional branches, or may be simplified by the suppression of certain branches.

For the purpose of lowering processing costs by avoiding known results.

Conclusion

4.   The prior art of record and not relied upon is considered pertinent to the

applicant's disclosure.

        -U. S. Patent Publication 20040015386: Abe

        -U. S. Patent Publication 20030103682: Blake

        -U. S. Patent Publication 20030188065: Golla

        -'Multiresolution image segmentation': Comer

        -'Multiresolution hidden Markov trees for analysis of automatic target recognition

algorithms': Stanford

5.   Claims 1-12 are rejected.

Correspondence Information

6.   Any inquiry concerning this information or related to the subject disclosure should

be directed to the Examiner Peter Coughlan, whose telephone number is (571) 272-

5990. The Examiner can be reached on Monday through Friday from 7:15 a.m. to 3:45

p.m.

        If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's

supervisor David Vincent can be reached at (571) 272-3080. Any response to this

office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

Hand delivered to:

Receptionist,

Customer Service Window,

Randolph Building,

401 Dulany Street,

Alexandria, Virginia 22313,

(located on the first floor of the south side of the Randolph Building);

or faxed to:

(571) 272-3150 (for formal communications intended for entry.)

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on access to Private PAIR system, contact the Electronic Business Center (EBC) at

866-217-9197 (toll free).

Examiner, Art Unit 2129

/Peter Coughlan/

6/2/2008

/David R Vincent/

Supervisory Patent Examiner, Art Unit 2129